

WE CLAIM:

1. A process for the manufacture of seed crystals of a molecular sieve, which comprises synthesizing the molecular sieve by treatment of an appropriate
5 synthesis mixture, separating from the treated synthesis mixture a crystalline molecular sieve comprising particles of a first, larger, particle size in admixture with particles of a second, smaller, size suitable for use as seed crystals, treating the crystalline molecular sieve to separate the larger particles from the smaller particles, and recovering the smaller particles.
- 10 2. A process as claimed in claim 1, wherein separation is effected by dividing the treated synthesis mixture into a liquid component and a crystalline solid component, washing the solid component at least once using a washing medium, and recovering a used washing medium containing the second, smaller size,
15 particles.
3. A process as claimed in claim 2, wherein separation is effected by decanting.
- 20 4. A process as claimed in claim 2, wherein separation is effected by centrifuging.
5. A process as claimed in claim 2, wherein separation is effected by filtering.
- 25 6. A process as claimed in claim 2, wherein the solid component is washed a plurality of times until the used washing medium becomes hazy, and the hazy washing medium is recovered.

7. A process as claimed in claim 1, wherein the second, smaller size, particles have a dimension in the range 20 to 400 nm.

8. A process as claimed in claim 1, wherein the molecular sieve is of
5 structure type LEV, FER, TON, MFS, MFI, or MOR.

9. A process as claimed in claim 1, wherein the molecular sieve is a zeolite.

10. A process as claimed in claim 9, wherein the zeolite is selected from the
10 group consisting of ZSM-22, ZSM-38, ZSM-45, ZSM-57, NU-3, and Mordenite.

11. A process for the manufacture of a crystalline molecular sieve by
treatment of a synthesis mixture appropriate for the formation of that molecular
sieve, wherein the mixture contains as seeds separated smaller particles obtainable
15 by the process of claim 1.

12. A process as claimed in claim 11, wherein the concentration of seeds in the
synthesis mixture is up to 10000 parts per million, based on the total weight of
synthesis mixture.

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13. A process as claimed in claim 12, wherein the concentration is within the
range of 50 to 2000 parts per million.

25 14. In the synthesis of a crystalline molecular sieve by hydrothermal treatment
of a synthesis mixture, the improvement comprising the use of seed crystals
obtained by the process of claim 1 to accelerate the rate of production of the
crystalline molecular sieve.

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15. In the synthesis of a crystalline molecular sieve by hydrothermal treatment of a synthesis mixture, the improvement comprising the use of seed crystals obtained by the process of claim 1 to control a characteristic of the resulting crystalline molecular sieve.

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16. A process as claimed in claim 15, wherein the characteristic is the purity, the phase purity, the particle shape, the particle size, or the particle size distribution.

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17. In the synthesis of a crystalline molecular sieve by hydrothermal treatment of a synthesis mixture, the improvement comprising the use of seed crystals obtained by the process of claim 1 to facilitate the manufacture of a crystalline molecular sieve in a synthesis mixture substantially free from organic structure-directing agent.

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18. In the synthesis of a crystalline molecular sieve by hydrothermal treatment of a synthesis mixture, the improvement comprising the use of seed crystals obtained by the process of claim 1 to facilitate the manufacture of a crystalline molecular sieve, without stirring the synthesis mixture at least after the desired

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synthesis temperature has been reached.

19. The crystalline molecular sieve of a size suitable for use as seeds, the product of the process of claim 1.

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20. The crystalline molecular sieve product of the process of claim 11.

21. The crystalline molecular sieve as claimed in claim 20, which is in a chemical form suitable for use as a catalyst or a separation or absorption medium.

22. A process for hydrocarbon conversion, separation, or adsorption, which is carried out in the presence of the product claimed in claim 21.

23. A process of oxygenate conversion, which is carried out in the presence of
5 the product as claimed in claim 11.

24. An oxygenate conversion carried out using a sieve as claimed in claim 22.

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FOOTNOTES